



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/987,044	11/13/2001	Kiyonori Yokoi	33035WC0231	6359

7590 12/02/2002
SMITH GAMBRELL & RUSSELL, L.L.P.
Suite 800
1850 M Street, N.W.
Washington, DC 20036

EXAMINER

NGUYEN, CHAU N

ART UNIT	PAPER NUMBER
----------	--------------

2831

DATE MAILED: 12/02/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/987,044

Applicant(s)

YOKOI ET AL.

Examiner

Chau N Nguyen

Art Unit

2831

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 October 2002 and 18 November 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,4-22 and 24-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4-22 and 24-27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference sign(s) not mentioned in the description: Figure 8 is not mentioned in the description. A proposed drawing correction, corrected drawings, or amendment to the specification to add the reference sign(s) in the description, are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any

inventions covered therein were made absent any evidence to the contrary.

Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1, 10, 14, and 19-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Katsumata et al. (5,171,938) in view of Wessels et al. (5,614,319) and Harada (5,118,905).

Katsumata et al. discloses a coaxial element wire (fig. 7a) comprising a center conductor (111), a non-electrically conductive insulation layer (112) provided around the center conductor, and a first outer shaped-shaped conductor (113) wherein the outer conductor is made out of copper (col. 7, line 38) and is spirally wrapped around the insulation layer with one long side thereof facing the insulation layer, and has its four corners smoothed. Katsumata et al. also discloses the coaxial element wire being provided with a jacket (115) to form a coaxial cable.

Katsumata et al. does not specifically disclose the thickness of the insulation layer being 0.03 mm to 0.15 mm, the outer conductor obtained by pressing a round wire into a flat form, without annealing after pressing.

Wessels et al. discloses a cable comprising an insulation layer having a thickness of less than 0.15 mm (col. 7, lines 47-49). It would have been obvious to one skilled in the art to provide the insulation of Katsumata et al. with a thickness of less than 0.15 mm as taught by Wessels et al. to provide a flexibility for the cable.

Harada discloses a coaxial cable comprising an outer conductor which is formed by a plurality of ribbon-shaped conductors. Harada discloses that the ribbon-shaped conductor is obtained by pressing a round wire into a ribbon-shaped wire. It would have been obvious to one skilled in the art to use a ribbon-shaped conductor which is formed by pressing a round wire for the ribbon-shaped conductor of Katsumata since a ribbon-shaped conductor formed from pressing a round wire would provide smooth corners as taught by Harada.

Although not disclosed by the references, it is well-known in the art that annealing a metal is to increase the hardness of the metal, and the ribbon-shaped conductor of Katsumata or Harada is used for either helical winding or braiding. Therefore, annealing the conductor after pressing would make the conductor harder

which would be difficult for winding or braiding the conductor. Accordingly, it would have been obvious to one skilled in the art to not annealing the ribbon-shaped conductor, after pressing, in the modified Katsumata cable to ease the step of helically winding the conductor around the insulation.

Katsumata discloses that a plurality of the ribbon-shaped conductors can be used, in such case the conductors can be wound in parallel (the same direction) to each other or in intersecting relation (opposite direction) (col. 6, lines 53-56).

5. Claims 2, 12, 15, 16, 22, and 25-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Katsumata et al. in view of Wessels et al., Harada and Mori (4,638,114).

The combination of Katsumata et al., Wessels et al. and Harada discloses the invention substantially as claimed except for the outer conductor being wrapped with an angle of 45° or more with respect to the axis of the wire. Mori discloses a coaxial cable comprising an outer conductor which is wrapped with an angle of 45° or more with respect to the axis of the wire. It would have been obvious to one skilled in the art to wrap the outer conductor of Katsumata et al. with an angle of 45° or more with respect to the axis of the wire as taught by Mori to provide a desired capacitance for the cable (re claims 2 and 22).

Re claims 2, 16 and 22, Mori discloses that the capacitance of the cable depends upon the tension and the angle of the wrapped conductor. Therefore, it would have been obvious to one skilled in the art to choose suitable tension for the outer conductor of Katsumata et al. to meet the specific use of the resulting cable since it is taught by Mori that the capacitance of the cable depends upon the tension and the angle of the wrapped conductor.

6. Claims 4 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Katsumata et al. in view of Wessels et al. and Harada as applied to claim 1 above, and further in view of Sass (4,552,989).

Sass discloses a cable comprising a plurality of coaxial cables being twisted together and a jacket. It would have been obvious to one skilled in the art to use a plurality of the modified coaxial cables of Katsumata et al. to form a multi coaxial cable as taught by Sass for multiple transmitting purposes.

7. Claims 5 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Katsumata et al. in view of Wessels et al., Harada and Sass as applied to claim 4 above, and further in view of Ijff et al. (4,358,636).

Ijff et al. discloses a multiple coaxial cable comprising a plurality of coaxial cables wherein the outer conductors of the coaxial cables are in contact. Ijff et al. also discloses coaxial cables being disposed at a position where the cables are subjected to bending (col. 1). It would have been obvious to one skilled in the art to contact the outer conductors of the coaxial cables in the modified Katsumata et al. cable together so that optimum signal transmission is realized as taught by Ijff et al. It would also have been obvious to one skilled in the art to use the modified cable of Katsumata et al. at a position where the cables are subjected to bending since the modified cable of Katsumata et al. is flexible.

8. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Katsumata et al. in view of Wessels et al. and Harada as applied to claim 1 above, and further in view of Martin (3,334,177).

Martin discloses a cable comprising an outer conductor (12) being spirally wrapped (helically wrapped) with adjacent wrappings of the outer conductor butt against one another. It would have been obvious to one skilled in the art to modify the outer conductor of Katsumata such that the spiral or the helical adjacent wrappings of the outer conductor butt against one another as taught by Martin to improve the shielding effect for the cable.

9. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Katsumata et al. in view of Wessels et al., Harada and Mori as applied to claim 2 above, and further in view of Martin.

Martin discloses a cable comprising an outer conductor (12) being spirally wrapped (helically wrapped) with adjacent wrappings of the outer conductor butt against one another. It would have been obvious to one skilled in the art to modify the outer conductor of Katsumata such that the spiral or the helical adjacent wrappings of the outer conductor butt against one another as taught by Martin to improve the shielding effect for the cable.

10. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Katsumata et al. in view of Wessels et al. and Harada as applied to claim 1 above, and further in view of Peterson (5,354,954).

Peterson discloses a cable comprising two ribbon-shaped conductors (18,20) helically wrapped on an insulation core (16) wherein the second ribbon-shaped conductor overlaps the first ribbon-shaped conductor (Figs 2 and 3). It would have been obvious to one skilled in the art that in the case two (a plurality) of ribbon-shaped conductors are used in the Katsumata cable, to provide the two conductors

in the same direction and to provide the second conductor overlapping the first conductor as taught by Peterson. With this modification, the frictionally induced fracture and failure in the cable is greatly reduced (col. 4, lines 46-49).

11. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Katsumata et al. in view of Wessels et al., Harada and Mori as applied to claim 2 above, and further in view of Peterson.

Peterson discloses a cable comprising two ribbon-shaped conductors (18,20) helically wrapped on an insulation core (16) wherein the second ribbon-shaped conductor overlaps the first ribbon-shaped conductor (Figs 2 and 3). It would have been obvious to one skilled in the art that in the case two (a plurality) of ribbon-shaped conductors are used in the Katsumata cable, to provide the two conductors in the same direction and to provide the second conductor overlapping the first conductor as taught by Peterson. With this modification, the frictionally induced fracture and failure in the cable is greatly reduced (col. 4, lines 46-49).

12. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Katsumata et al. in view of Wessels et al., Harada, and Mori as applied to claim 16 above, and further in view of Sass.

Sass discloses a cable comprising a plurality of coaxial cables being twisted together and a jacket. It would have been obvious to one skilled in the art to use a plurality of the modified coaxial cables of Katsumata et al. to form a multi coaxial cable as taught by Sass for multiple transmitting purposes.

13. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Katsumata et al. in view of Wessels et al., Harada, Mori, and Sass as applied to claim 17 above, and further in view of Ijff et al.

Ijff et al. discloses a multiple coaxial cable comprising a plurality of coaxial cables wherein the outer conductors of the coaxial cables are in contact. Ijff et al. also discloses coaxial cables being disposed at a position where the cables are subjected to bending (col. 1). It would have been obvious to one skilled in the art to contact the outer conductors of the coaxial cables in the modified Katsumata et al. cable together so that optimum signal transmission is realized as taught by Ijff et al. It would also have been obvious to one skilled in the art to use the modified cable of Katsumata et al. at a position where the cables are subjected to bending since the modified cable of Katsumata et al. is flexible.

14. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Katsumata et al. in view of Wessels et al., Harada and Mori as applied to claim 2 above, and further in view of Sass.

Sass discloses a cable comprising a plurality of coaxial cables being twisted together and a jacket. It would have been obvious to one skilled in the art to use a plurality of the modified coaxial cables of Katsumata et al. to form a multi coaxial cable as taught by Sass for multiple transmitting purposes.

Response to Arguments

15. Applicant's arguments with respect to claims 2, 16 and 22 have been considered but are moot in view of the new ground(s) of rejection except for the following.

Regarding the Katsumata et al. reference, applicant argues that Katsumata et al. does not disclose a non-electrically conductive insulation layer. In response, Katsumata et al. does disclose a non-electrically conductive insulation layer (112) provided around the center conductor.

Regarding the Wessels et al. reference, applicant argues that Wessels et al. discloses an insulation layer comprising a mixture which is different from the non-electrically conductive insulation resin in the claimed invention. Therefore, there

is no suggestion or motivation to combine Wessels et al. with Katsumata et al. This argument is not found persuasive. Firstly, the claimed invention does not recite any specific resin for the insulation layer. Secondly, Wessels et al. is used only to support the position of using an insulation layer having a thickness of less than 0.15 mm, therefore Wessels et al. does not have to disclose the claimed insulation. Finally, Wessels et al. does teach a non-electrically conductive insulation layer.

Regarding the Harada reference, applicant argues that Harada discloses a coaxial cable comprising flattened individual metal conductors, but nowhere does Harada disclose the use of a non-electrically conductive resin as insulation layer. Therefore, there is no reason to combine with Katsumata et al. In response, Harada is used only to support the position of forming a ribbon-shaped conductor by pressing a round wire, therefore Harada does not have to disclose the use of non-electrically conductive resin as insulation layer which is already disclosed by Katsumata et al.

Regarding the Mori reference, applicant argues that Mori discloses a coaxial cable comprising a shield layer (outer conductor) on the insulation layer where the winding angle, 80° - 85° , is measured from the normal to the longitudinal axis of the wire. This is contrary to the practiced disclosed in the claimed invention where the

wrapping angle of the shaped-shaped conductor with respect to an axis of the coaxial element is 45 degrees or more. In response, Mori does disclose a coaxial cable comprising outer conductor where the winding angle of the conductor with respect to an axis of the coaxial element is 45 degrees (see Figure 2).

Regarding the Sass reference, applicant argues that the features disclosed in Sass are different from the claimed invention, therefore there is no reason to combine with Katsumata et al. In response, Sass is used only to support the position of using a plurality of coaxial cables to form a multi coaxial cable, therefore Sass does not have to disclose all the features as claimed in the claimed invention.

Regarding the Ijff reference, applicant argues that the claimed invention, even when a multi core conductor is used, employs a non-electrically conductive resin as an insulation layer. Ijff employs a different structure from the claimed invention, therefore there is no reason to combine with Katsumata et al. In response, as stated above, the feature of using a non-electrically conductive resin as an insulation layer is disclosed by Katsumata et al. Ijff is used only to support the position of using a multi core conductor wherein the outer conductors are in electrical contact.

Regarding the Martin and Peterson references, applicant argues that nowhere does Martin or Peterson disclose or refer to a non-electrically conductive resin as an insulation layer. Again, this feature is already disclosed in Katsumata et al.

Summary

16. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Communication

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chau N Nguyen whose telephone number is 308-0693. The examiner can normally be reached on Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dean Reichard can be reached on (703) 308 3682. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308 3431 for regular communications and (703) 305 1341 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.


Chau N Nguyen
Primary Examiner
Art Unit 2831

CN
November 21, 2002